1967

Antibiotic Supplementation for Pregnant Ewes

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ANTIBIOTIC SUPPLEMENTATION FOR PREGNANT EWES[1]

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Percentage lamb crop weaned is important to profitable lamb production. Lamb losses from birth to weaning can greatly influence precentage lamb crop weaned. In a recent study at the Ohio Station involving 779 lambs, over-all death loss from birth to weaning was 26 per cent. Records from the Montana Experiment Station range flock (7,191 lambs) indicate a death loss of 23.5 per cent from birth to weaning. The age of lambs when most of the losses occur and the most common causes of lamb mortality suggest a direct relationship between the health of the ewe flock and lamb mortality.

The objective of this three year study was to evaluate the influence of antibiotic supplementation on lamb livability and performance.

Procedure

Ewes from the Newell Field Station flock, predominately Rambouillet and Corriedale breed, were used for this study. Ewes included in the study ranged in age from one to nine years. All ewes were bred to Columbia rams. The trials were conducted during the spring of 1964, 1965 and 1966.

During the first week of February all pregnant ewes in the flock were arrayed by breed, age, ram bred to, and body weight and were allotted to two treatment groups the first year, three treatment groups the second and four treatment groups the third year. In the 1964 trial, one group of ewes received 60mg. of Aureomycin[3] per head daily in the grain supplement. The other group received the same supplement without Aureomycin. This procedure was repeated in 1965 except that a third group was maintained as controls until lambing, at which time the ewes received a single injection of 350 mg. of Terramycin[4] per hundred pounds of body weight. In 1966, the ewes were randomly allotted to four treatment groups: (1) control, (2) Aureomycin in the grain supplement, (3) Terramycin injection and (4) oral Aureomycin plus Terramycin injection. One hundred and thirty-seven pregnant ewes were utilized in the first trial, 204 in the second and 190 ewes in the third trial.

Treatments were initiated about February 10 each year and continued for approximately 12 weeks. Ewes were run as one group until lambing and were sorted each day into treatment groups for supplemental feeding. After lambing the two oral supplementation groups were maintained separately but under similar conditions of nutrition, management and shelter.

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[1]Trials were conducted at the U. S. Irrigation and Dry Land Field Station, Newell South Dakota

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[3]Aureomycin is the trade name for Chlortetracycline, manufactured by American Cyanamid Company

[4]Terramycin is the trade name for Oxytetracyline, manufactured by Charles Pfizer and Company

All ewes were shorn during the first week in March and shed-lambed starting about March 15. After lambing the flock was maintained in drylot until pastures were ready in the spring.

Ewes were weighed at the beginning of the trial, immediately after lambing and at the end of the supplementation period. Lambs were weighed at birth, at the end of the supplementation period and at weaning. Lambs were weaned in 1964, 1965 and 1966 at an average age of 86, 92 and 82 days respectively.

Results

Results of the 1964 trial are summarized in Table 1. Per cent lambs born of ewes lambing was substantially higher among ewes supplemented with Aureomycin. The Aureomycin supplemented ewes dropped a 161 per cent lamb crop compared to 149 per cent for the controls. The addition of Aureomycin to the ration appeared to substantially reduce lamb mortality. Death loss among lambs from Aureomycin supplemented ewes was 3.5 per cent of lambs born (including stillbirths) compared to 12 per cent for the controls. The Aureomycin group showed a 25 per cent advantage in per cent lambs weaned. Ewes in this group weaned a 156 per cent lamb crop compared to 131 per cent for the controls. There appeared to be no influence of treatment on weight change of ewes or rate of gain of the lambs to weaning.

Table 1. Effect of Adding Aureomycin to Grain Supplement for Pregnant Ewes 1964

Treatment:	Control	Aureomycin[1]
No. of ewes	67	70
Days on test	84	84
Wt. change of ewes, lb. (84 days)	-3	-3
No. of lambs born	100	113
Lamb crop born[2]	149	161
Lambs lost		
number	12	4
percentage	12	3.5
Lamb crop weaned[2]	131	156
Av. daily gain of lambs, birth to weaning, lb.:		
singles	.55	.57
twins	.41	.44

[1]Fed 60 mg. per head daily for 84 days, beginning 6 weeks before lambing

[2]Number of lambs per 100 ewes lambing

Results of the 1965 trial are presented in Table 2. Again per cent lambs born of ewes lambing was substantially higher among ewes supplemented with Aureomycin. The addition of Aureomycin to the ration of pregnant ewes prior to and following lambing reduced lamb mortality to 5.5 per cent of lambs born compared to 20.5 per cent among the controls. A single injection of Terramycin, given to ewes immediately after lambing, reduced lamb mortality to 8.3 per cent. Ewes in the Auteomycin supplemented group weaned 149 lambs per 100 ewes compared to 135 for the Terramycin injected ewes and 114 for the controls. The treatments appeared to have little, if any influence on ewe weight or lamb gain from birth to weaning.

Table 2. Effect of Aureomycin Supplementation and Terramycin Injection for Pregnant Ewes, 1965

Treatment:	Control	Terramycin[1]	Aureomycin[2]
No. of ewes	78	57	69
Days on test	80	80	80
Wt. change of ewes, lb. (80 days)	-23	-21	-22
No. lambs born	112	84	109
Lamb crop born[3]	144	147	158
Lambs lost:			
number	23	7	6
percentage	20.5	8.3	5.5
Lamb crop weaned[3]	114	135	149
Av. daily gain of lambs, birth to weaning, lb.:			
singles	.52	.52	.53
twins	.48	.43	.48

[1]Single injection to ewes at lambing, approximately 350 mg./100 lb.body wt.

[2]Fed 60 mg. per head daily for 80 days, beginning 6 weeks before lambing

[3]Number of lambs per 100 ewes lambing

Results of the 1966 trial are shown in Table 3. Average lamb death loss was substantially lower than in previous year. However, the addition of Aureomycin to the grain supplement appeared to substantially reduce lamb death loss. Terramycin injection appeared to have no effect on lamb death loss in this trial.

The majority of all lamb losses observed in this study occured during the first week after birth (Table 4). Considering all treatment groups, 64 per cent of the recorded deaths occured during the first week after birth. Although mortality rate was highest among new born lambs for all treatment groups, differences between treatment groups as to when deaths occured were apparent. Although mortality rate was lowest in the Aureomycin supplemented group, lamb losses occured at an earlier age. No lamb losses were noted in the Aureomycin group after the third week, while 15 per cent of the deaths in the control group occured among lambs over 3 weeks of age.

Table 3. Effect of Aureomycin Supplementation and Terramycin Injection for Pregnant Ewes, 1966

Treatment:	Control	Aureomycin	Terramycin	Aureomycin + Terramycin
No. of ewes	51	51	48	40
No. lambs born	63	59	60	50
Lamb crop born[3]	124	116	125	125
Lambs lost:				
number	5	1	4	2
percentage	7.9	1.7	6.7	4.0
Lamb crop weaned[3]	114	114	117	120

[1]Fed 60 mg. per head daily for 80 days, beginning 6 weeks before lambing

[2]Single injection to ewe at lambing, approximately 350. mg./100 lb. body wt.

[3]Number of lambs per 100 ewes lambing

Table 4. Death Loss Among Lambs as Related to Age - Three-Year Summary

Treatment:	Control	Aureomycin	Terramycin[1]	Aureomycin + Terramycin[2]	Totals
Age of lambs (weeks)		Number of lambs died			
0-1	26	9	4	2	41
1-2	7	1	1	0	9
2-3	1	1	4	0	6
3-4	3	0	2	0	5
4-5	3	0	0	0	3
Totals:	40	11	11	2	64

[1]Two years, 1965 and 1966

[2]1966 only

Death loss was greatest among twin lambs. Mortality rate, averaged over-all treatments, was 10.5 per cent among twin lambs compared to 5.8 per cent among lambs born as singles (Table 5). Mortality rate in the control group was 18.6 per cent for twin lambs and 9.2 per cent for singles. In the Aureomycin group, mortality rate among twin lambs was 5.0 per cent and was 2.0 per cent among lambs born as singles.

Table 5. Death Loss Among Lambs as Related to Type of Birth - Three-Year Summary

Treatment Type of Birth	Lambs Born	No. Lambs Died	Per Cent Death Loss
Control			
Singles	119	11	9.2
Twins	156	29	18.6
Aureomycin			
Singles	99	2	2.0
Twins	182	9	5.0
Terramycin[1]			
Singles	64	4	6.2
Twins	80	7	8.8
Aureo. + Terra.[2]			
Singles	30	1	3.3
Twins	20	1	5.0
All Treatments			
Singles	312	18	5.8
Twins	438	46	10.5

[1]Two years, 1965 and 1966

[2]1966 only

Summary

Five hundred and thirty-one western ewes of mixed breeding were utilized in a three-year study to evaluate the influence of antibiotic supplementation to pregnant ewes on lamb livability and performance.

Supplementing pregnant ewes with 60 mg. of Aureomycin per head daily for about 80 days beginning 6 weeks prior to the start of lambing substantially reduced lamb mortality. Average lamb mortality rate for the three year period was 3.9 per cent in the Aureomycin supplemented group compared to 14.5 per cent in the control group.

An intra-muscular injection of 350 mg. of Terramycin per 100 pounds of body weight, given to the ewes immediately after lambing, reduced lamb death loss in the 1965 trial but appeared to have no influence in the 1966 trial. Terramycin was used only in the 1965 and 1966 trials.

The combination of Aureomycin and injectible Terramycin, used only in the 1966 trial, appeared to be less effective in minimizing lamb death loss than Aureomycin alone.

There appeared to be no influence of treatment on weight change of ewes or lamb gain from birth to weaning.